

Form IC 737

Rev. 2-12

State Form 37779

Contract No.

IR-34937

File Only

Report No.

1 of 4

INDIANA DEPARTMENT OF TRANSPORTATION PLANT COMPUTATION REPORT FOR PRECAST PRESTRESSED CONCRETE BRIDGE MEMBERS

Date Tensioned:

12/26/2012

IDENTIFICATION

Producer

Prestress Services - Lexington, KY

Member Nos.

501-1, 502-2, 505-3

Bed No.

1

Bed Length

4,429 in

Member Length

1,236 in

Member Size

54" H x 48" W

Member Type

54" Bulb Tee

STRAND

Size

1/2 ins.

Type 270k LRO

Area (A)

0.1646

ins.²

Modulus of Elasticity (E)

28,800,000

lbs.

Strand Manufacturer

American Springwire

GENERAL DATA

Specified Stress (as shown on plans)

psi.

Specified Load (P)

33,815

lbs.

Pre Load (P_i)

3,000

lbs.

P - P_i

30,815

lbs.

Gage Length of Strand (L)

4,429

ins.

Strand encased in concrete

3,708

ins.

Computed Elongation

(e) =

$$\frac{((P - P_i) \times L)}{A \times E}$$

136,479,635

4,740,480

28.79

ins.

(p) =

$$\frac{(P - P_i)}{e}$$

30,815

28.79

1,070

lbs / in.

Air Temperature When Tensioned:

35

°F

Assumed Concrete Temperature

55

°F

OPERATIONAL LOSSES

	Assumed	Actual		Assumed	Actual
Thermal			Anchorage Movement	0.33	0.033
Slippage	0.125	0.125	Anchoring Bolts		
Splices	0	0	Other		
Total Operational Losses (e _l)		= 0.158	inches		

CORRECTED ELONGATION FOR LOSSES

Computed Elongation (e)	28.79	ins.	+ Losses (e _l)	0.158	Corrected Elongation (e _c)	28.95	ins.
(Elongation to be Measured)							

CORRECTED LOAD FOR LOSSES

Specified Load	(P)	33,815				lbs.
Equivalent Load for Losses	= p x (e _l)	169	Corrected Load	(P _c)	33,984	lbs.

TOTAL JACKING LOAD (if multiple strand)

Number of Strands	1	x	P _c	=	33,984										lbs.
Actual Jacking Load														lbs.	

MAXIMUM AND MINIMUM ALLOWABLE ELONGATIONS

(e _c - 5%)	=	0.95	x	28.95	=	27.50	or	27 4/8	ins.	(minimum elongation)
(e _c + 5%)	=	1.05	x	28.95	=	30.40	or	30 3/8	ins.	(maximum elongation)

REMARKS:

Inspector

JESSICA M. MARTINSON

Date

12/26/2012